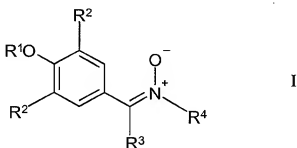


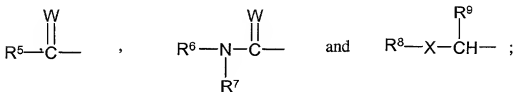
**WHAT IS CLAIMED IS:**

1. A method for treating neuropathic pain is a patient comprising administering an effective neuropathic pain-treating dose of a pharmaceutical composition comprising a compound of formula I:



wherein

R<sup>1</sup> is selected from the group consisting of hydrogen, alkyl



each R<sup>2</sup> is independently selected from a group of the formula:



R<sup>3</sup> is selected from the group consisting of hydrogen, alkyl, cycloalkyl and aryl;

R<sup>4</sup> is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R<sup>5</sup> is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R<sup>6</sup> and R<sup>7</sup> are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R<sup>6</sup> and R<sup>7</sup> can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R<sup>8</sup> is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R<sup>9</sup> is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R<sup>8</sup> and R<sup>9</sup> can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R<sup>10</sup> is selected from the group consisting of hydrogen, lower alkyl and lower cycloalkyl; or R<sup>1</sup> and R<sup>10</sup> can be joined to form an alkylene, substituted alkylene, -C(O)- -S(O)- or -S(O)<sub>2</sub>- group;

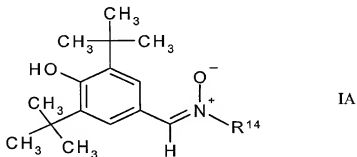
R<sup>11</sup> and R<sup>12</sup> are independently selected from the group consisting of lower alkyl and lower cycloalkyl; or R<sup>11</sup> and R<sup>12</sup> can be joined to form an alkylene group having from 2 to 10 carbon atoms;

X is oxygen, sulfur, -S(O)- or -S(O)<sub>2</sub>-; and

W is oxygen or sulfur; and pharmaceutically-acceptable salts thereof.

2. The method of Claim 1 wherein W is oxygen.
3. The method of Claim 2 wherein R<sup>3</sup> is hydrogen or lower alkyl.
4. The method of Claim 3 wherein R<sup>3</sup> is hydrogen.
5. The method of Claim 4 wherein R<sup>4</sup> is selected from the group consisting of alkyl, substituted alkyl and cycloalkyl.
6. The method of Claim 5 wherein R<sup>4</sup> is selected from the group consisting of methyl, *n*-propyl, isopropyl, 1-hydroxy-2-methylprop-2-yl, *n*-butyl, *tert*-butyl, 3-thiomethylpropyl, 3-(thiomethoxy)but-1-yl, cyclohexyl, 4-trifluoromethylbenzyl and 3,4,5-trimethoxybenzyl.
7. The method of Claim 4 wherein R<sup>5</sup> is selected from the group consisting of alkyl and cycloalkyl.
8. The method of Claim 7 wherein R<sup>5</sup> is selected from the group consisting of methyl, ethyl, *n*-propyl, isopropyl and *n*-butyl.
9. The method of Claim 4 wherein R<sup>7</sup> is hydrogen and R<sup>6</sup> is selected from the group consisting of alkyl and alkoxy carbonylalkyl.
10. The method of Claim 9 wherein R<sup>6</sup> groups is selected from the group consisting of ethyl, *n*-propyl, isopropyl, *n*-butyl, ethoxycarbonylmethyl and 2-(ethoxycarbonyl)ethyl.

11. The method of Claim 4 wherein X is oxygen; R<sup>9</sup> is hydrogen; and R<sup>8</sup> is alkyl or alkoxyalkyl.
12. The method of Claim 11 wherein R<sup>8</sup> is selected from the group consisting of methyl and methoxyethyl.
13. The method of Claim 4 wherein R<sup>10</sup>, R<sup>11</sup> and R<sup>12</sup> are independently lower alkyl.
14. The of Claim 13 wherein R<sup>10</sup>, R<sup>11</sup> and R<sup>12</sup> are methyl.
15. The method of Claim 1 wherein the compound is of formula IA:

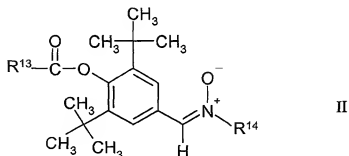


wherein

R<sup>14</sup> is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl.

16. The method of Claim 15 wherein R<sup>14</sup> is an alkyl of from 3 to 8 carbon atoms.
17. The method of Claim 16 wherein R<sup>14</sup> is *tert*-butyl.
18. The method of Claim 16 wherein R<sup>14</sup> is *tert*-octyl.

19. The method of Claim 1 wherein the compound is of formula II:



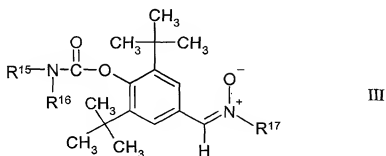
wherein

R<sup>13</sup> is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl;

R<sup>14</sup> is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl; and pharmaceutically-acceptable salts thereof.

20. The method of Claim 15 wherein R<sup>13</sup> is lower alkyl and R<sup>14</sup> is selected from the group consisting of alkyl, substituted alkyl and cycloalkyl.

21. The method of Claim 1 wherein the compound is of formula III:



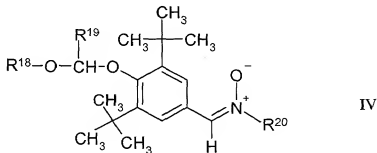
wherein

$R^{15}$  and  $R^{16}$  are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl; or  $R^{15}$  and  $R^{16}$  can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

$R^{17}$  is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl; and pharmaceutically-acceptable salts thereof.

22. The method of Claim 21 wherein  $R^{16}$  is hydrogen and  $R^{15}$  is selected from the group consisting of alkyl and alkoxy carbonylalkyl.

23. The method of Claim 1 wherein the compound is of formula IV:



wherein

$R^{18}$  is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl;

$R^{19}$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl; or  $R^{18}$  and  $R^{19}$  can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

$R^{20}$  is selected from the group consisting of alkyl, substituted alkyl,

cycloalkyl and substituted cycloalkyl; and pharmaceutically-acceptable salts thereof.

24. The method of Claim 23 wherein  $R^{19}$  is hydrogen and  $R^{18}$  is alkyl or alkoxyalkyl.

25. The method of Claim 24 wherein  $R^{18}$  is methyl or methoxyethyl.

26. The method of Claim 23 wherein  $R^{20}$  is selected from the group consisting of alkyl, substituted alkyl and cycloalkyl.

27. The method of Claim 26 wherein  $R^{20}$  is selected from the group consisting of methyl, *n*-propyl, isopropyl, 1-hydroxy-2-methylprop-2-yl, *n*-butyl, *tert*-butyl, 3-thiomethylpropyl, 3-(thiomethoxy)but-1-yl, cyclohexyl, 4-trifluoromethylbenzyl and 3,4,5-trimethoxybenzyl.

28. The method of Claim 1 wherein the compound is selected from the group consisting of:

$\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

$\alpha$ -(4-isobutanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

$\alpha$ -(4-*n*-butanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

$\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-isopropylnitrone

$\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-1-hydroxy-2-methylprop-2-ynitrone

$\alpha$ -(4-*n*-pentanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

$\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-4-trifluoromethylbenzyl nitrone

$\alpha$ -(4-propionyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

$\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-methyl nitrone

- $\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-3,4,5-trimethoxybenzyl nitrone
- $\alpha$ -[4-(ethylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -[4-(*n*-propylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -[4-(*n*-butylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -[4-(2-ethoxycarbonyl)ethylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -[4-(2-ethoxycarbonyl)methylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butyl nitrone
- $\alpha$ -[4-(2-methoxy)ethoxymethoxy-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone
- $\alpha$ -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N*-3-(thiomethoxy)but-1-yl nitrone
- $\alpha$ -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N*-3-thiomethoxypropyl nitrone
- $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butyl nitrone
- $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-octyl nitrone
- $\alpha$ -(4-hydroxy-3,5-dimethoxyphenyl)-*N-tert*-butyl nitrone
- $\alpha$ -(4-hydroxy-3,5-dimethylphenyl)-*N*-hexyl nitrone
- $\alpha$ -(4-hydroxy-3,5-dimethylphenyl)-*N-tert*-butyl nitrone
- $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1,1-dimethyl-2-hydroxyethyl) nitrone
- $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1,1-dimethylpropyl) nitrone
- $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1-methylethyl) nitrone



$\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-benzylnitron

$\alpha$ -(4-methoxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

and pharmaceutically acceptable salts thereof.

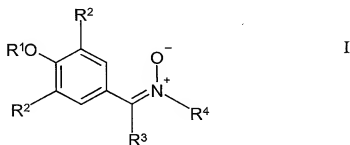
29. The method of Claim 1 wherein the compound is  $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

30. The method of Claim 1 wherein the compound is  $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-octylnitron

31. The method of Claim 1 wherein the compound is  $\alpha$ -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-octylnitron

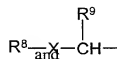
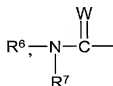
32. The method of Claim 1 wherein the compound is  $\alpha$ -(4-*n*-butanoyloxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

33. A pharmaceutical composition for the treatment of neuropathic pain comprising a pharmaceutically acceptable carrier and a pharmaceutically effective neuropathic pain-treating amount of a compound of formula I:



wherein

$R^1$  is selected from the group consisting of hydrogen:



each  $R^2$  is independently selected from a group of the formula:



$R^3$  is selected from the group consisting of hydrogen, alkyl, cycloalkyl and aryl;

$R^4$  is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

$R^5$  is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

$R^6$  and  $R^7$  are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or  $R^6$  and  $R^7$  can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

$R^8$  is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

$R^9$  is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl,

substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R<sup>8</sup> and R<sup>9</sup> can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R<sup>10</sup> is selected from the group consisting of hydrogen, lower alkyl and lower cycloalkyl; or R<sup>1</sup> and R<sup>10</sup> can be joined to form an alkylene, substituted alkylene, -C(O)- -S(O)- or -S(O)<sub>2</sub>- group;

R<sup>11</sup> and R<sup>12</sup> are independently selected from the group consisting of lower alkyl and lower cycloalkyl; or R<sup>11</sup> and R<sup>12</sup> can be joined to form an alkylene group having from 2 to 10 carbon atoms;

X is oxygen, sulfur, -S(O)- or -S(O)<sub>2</sub>-; and

W is oxygen or sulfur; and pharmaceutically-acceptable salts thereof.

34. The pharmaceutical composition of Claim 33 wherein the compound is  $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitron.

35. The pharmaceutical composition of Claim 33 wherein the compound is  $\alpha$ -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-octylnitron.